



February 2005

Technology aids aircraft manufacturing industry

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WRIGHT-PATTERSON AIR FORCE BASE, Ohio — The Cessna Aircraft Company used Air Force Growth (AFGROW) software, developed by the Air Force Research Laboratory's Air Vehicles Directorate, to certify the damage tolerance of the new Cessna Citation Jet 3 (CJ3) aircraft. AFGROW verified that the CJ3 met all requirements needed to earn Federal Aviation Administration certification.

The CJ3 was the first aircraft Cessna certified using AFGROW. However, because of AFGROW's capabilities and usability, Cessna plans to use this program for all of its future projects.

The Air Vehicles Directorate originally developed AFGROW to evaluate the reliability and assess the risk of the Air Force's current platforms. AFGROW effectively predicts structural crack growth over time. It helps engineers determine service life for existing aircraft structures and create preventative maintenance schedules. In addition, using AFGROW during the initial design process helps engineers build structures that are more resistant to cracking.

AFGROW is a state-of-the-art, user friendly computer program that can interface with Microsoft applications. Users can cut and paste information between the Windows clip board and Microsoft Windows applications like Excel. Then, they can compare experimental data points in Microsoft Excel to AFGROW's predictions to see if the test model performed as they expected. This capability eliminates the need for AFGROW users or developers to create supplemental programs when effective programs already exist, saving time and money.

Over the past decade, the Air Vehicles Directorate has continually infused AFGROW with the latest analysis technology. Today, AFGROW is one of the fastest and most efficient structural crack life prediction tools available. Many major aerospace companies, such as Cessna and Boeing, use AFGROW. However, it can be applied to any structure that experiences fatigue cracking. AFGROW is available to everyone on-line and free of charge. @□